



Agenda Date: 4/28/04  
Agenda Item: 2D

**STATE OF NEW JERSEY**  
**Board of Public Utilities**  
**Two Gateway Center**  
**Newark, NJ 07102**  
[www.bpu.state.nj.us](http://www.bpu.state.nj.us)

IN THE MATTER OF	)	<u>ENERGY</u>
THE BOARD'S INVESTIGATION	)	
INTO ALLEGATIONS OF STRAY	)	ORDER
VOLTAGE OCCURRENCES WITHIN	)	
THE SERVICE TERRITORY OF	)	
JERSEY CENTRAL POWER & LIGHT COMPANY	)	DOCKET NO. EO02120923

BY THE BOARD:

Since summer 2002, the Board of Public Utilities ("Board") and its staff ("Staff") have been engaged in remediation efforts to address the "stray voltage" problems experienced by some Jersey Central Power & Light Company ("JCP&L" or "Company") customers in Brick Township. When the actions taken in response to the Board's December 4, 2002 Order in this docket did not completely alleviate the problem, the Board directed the Company, in a November 13, 2003 Order, to take several specific additional actions. These additional actions were to be completed by April 1, 2004. By letter dated March 24, 2004, the Company has submitted a request for rescission of one of the directives or, in the alternative, a six-month extension of the allotted time in order to allow it to file a more formal motion.

In July and August of 2002, during a period of combined water drought and record peak electric demand conditions, several of JCP&L's customers residing in the vicinity of the Company's Herbertsville Substation, located in the Township of Brick, Ocean County, complained about experiencing tingling sensations caused by "stray voltage." Stray voltage is the non-technical term for a phenomenon more accurately called "neutral-to-earth voltage" or NEV. When the remedial actions taken by the Company at Staff's direction did not eliminate the problem, Staff requested the assistance of the National Regulatory Research Institute ("NRRI"). On October 4, 2002, the NRRI hired VitaTech Engineering ("VitaTech"), a firm with experienced in investigating electrical phenomena of various types, to investigate the matter and to submit a report containing an assessment, findings and recommendations to mitigate the situation. As a result of VitaTech's November 4, 2003 report, the Board ordered JCP&L to undertake three mitigation measures. On June 23, 2003, after being advised that the mitigation measures were completed, VitaTech re-visited the area and re-measured current flows and neutral-to-earth voltages. VitaTech subsequently submitted a report dated July 26, 2003 recommending additional actions to further reduce the NEV. In its November 13, 2003 Order, the Board adopted the July 26, 2003 report and directed JCP&L to take those specific actions recommended in the report.

The November 17, 2003 order contains eight directives ("Additional Recommendations"). The Company seeks rescission of Additional Recommendation Number Two, which requires that JCP&L:

Install a second 4/0 copper grounding conductor to the upgraded neutral and phase grounding sheaths on Riser 83 at the Herbertsville Substation running underground to the Bank #1 switchgear and bonding to neutral bus. The second grounding conductor shall be run in close proximity, if possible, to the three underground phases and other 4/0 copper grounding conductor to reduce the ground impedance through mutual induction.

The Company's request to have this requirement set aside is based on several grounds. First, the Company references two previous tests where grounding conductors identical to that required in the order were temporarily connected. In neither test, the Company states, was any change in the neutral-to-earth voltage produced at either the riser pole or the customer residence in question. Second, the Company asserts that the functional equivalent of the mechanism sought to be put in place by the recommendation already exists. Finally, the Company states that VitaTech, which originated Additional Recommendation Number Two, now concurs with the Company's belief that no useful purpose would be served by installing an additional copper grounding conductor. Moreover, the Company claims that VitaTech is now concerned that implementation of the recommendation would impact research into the Herbertsville Substation currently being conducted by the Electric Power Research Institute. In support of all these assertions, JCP&L has submitted a verification signed by its Regional Engineering Manager, Robert A. Keleher, in which he avers that the statements contained in the Company's letter are true. In subsequent discussions with the Board's consultant, Staff confirmed that VitaTech concurs with the Company on the advisability of not installing the grounding conductor.

Having reviewed this matter, the Board FINDS that, when taken in conjunction with Staff's own independent research, the Company has provided a sufficient evidentiary base for the Board to act. The Board therefore GRANTS the request for rescission. Lastly, the Board notes that in light of all previously implemented mitigation measures, the customer may experience no further ill effects from the stray voltage situation. In the event that discomfort is experienced, the Board ORDERS the Company to present the customer with the options for temporary palliative measures as set forth in the Electric Power Research Institute's Report TR-113566. The Board further DIRECTS the Company to evaluate alternative solutions for reducing stray voltage at the site and to report its findings to us no later than June 30, 2004.

DATED: 4/28/04

BOARD OF PUBLIC UTILITIES  
BY:

SIGNED

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JEANNE M. FOX  
PRESIDENT

SIGNED

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FREDERICK F. BUTLER  
COMMISSIONER

SIGNED

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CAROL J. MURPHY  
COMMISSIONER

SIGNED

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CONNIE O. HUGHES  
COMMISSIONER

SIGNED

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JACK ALTER  
COMMISSIONER

ATTEST:

SIGNED

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SECRETARY

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